

# Reported Likelihood of Reading Over-the-Counter (OTC) Medication Labeling and Contacting a Physician

*Deane B. Cheatham and Michael S. Wogalter*  
*Department of Psychology*  
*North Carolina State University*  
*Raleigh, NC 27695-7801 USA*

## Abstract

The present research examined the extent to which consumers reported reading information on over-the-counter (OTC) packaging and labels. Two studies consisting of a total of 652 participants were conducted. Study 1 participants completed a survey in which they reported their OTC medication behaviors in terms of saving the packaging from the medication and the likelihood that they would contact a physician with OTC medication questions. In Study 2, participants completed a survey in which they reported the likelihood of reading information on the medication packaging and label both before and after using the product the first time. Results indicated that participants frequently discard the box after using medication and rarely call a physician with questions regarding OTC medications. Findings also indicated that information is more likely to be read prior to using medication than afterwards. Age, sex, and student status differences in reading behaviors were also found. Implications for the delivery of OTC medication information are discussed.

## INTRODUCTION

Increasingly, consumers are using medications without medical supervision as more drugs that were once available only by prescription are sold over-the-counter (OTC), and consumers are relying more on self-care for many medical problems. Such a trend makes it critical that sufficient information be made easily accessible to ensure that the medication is safely and effectively used. The inclusion of information such as active ingredients, directions, and warnings requires that considerable information be included on the packaging and container of OTC medications in which space constraints are frequently an issue. Although there has been a significant increase in warnings and risk communication research, research is only beginning to be directed towards examining the effectiveness of warnings and directives included with OTC medications (e.g., Wogalter, Magurno, Scott, and Dietrich, 1996).

The primary means of communicating hazard information associated with OTC medications is through the use of warnings on the medication packaging. Warnings are also commonly placed on the label of the medication container itself. Given space constraint on medication containers, many

drug manufacturers place some of the information that does not appear on the container, including warnings, on the packaging of OTC medications.

This method of conveying hazards assumes that users read and at later times have available the packaging materials. This assumption may be inaccurate as many consumers may not read the packaging prior to use and may discard the packaging after the first use. In fact, the National Council on Patient Information and Education (NCPIE) reported that only seven percent of OTC consumers read the label for warning information (2002). Even if they read the information before discarding packaging, they may not recall pertinent information when problems or concerns arise.

Some known hazards and warnings are not present on either the container label or packaging. However, this information is available to the medical community (e.g., information printed in the Physician's Desk Reference and in other medical literature). In lieu of this absent information, many OTC medications instruct consumers to contact a physician if they have any questions or concerns relating to the use of the medication. The NCPIE survey indicated that less than half of the consumers of OTC consumers get OTC drug-related information from a physician, making the reliability

of instructing consumers to contact a physician a questionable method for conveying warning information. Some OTC consumers may not (a) have convenient access to a physician or (b) take the time to contact one prior to taking the medication or if no negative effects have been experienced.

The purpose of this research is to examine people's reports of selected behaviors regarding information provided on OTC medication packaging and container labels. In particular, the extent to which consumers report reading information on OTC packaging and labels is examined. Significantly fewer consumers may report reading the packaging and label information after the drug is used the first time than before. Also measured was the extent to which consumers report (a) discarding the exterior package after the first use, and (b) following the labeling directive to contact a physician with questions or concerns about OTC medications. With respect to the latter, it was anticipated that only a small percentage of consumers would attempt to contact a physician and, even if they make that attempt, only a few expect to actually talk to the physician.

## METHOD

### *Participants*

Two surveys were conducted. Three hundred and nine participants took part in Study 1 (169 males and 140 females). This sample was comprised of 221 students at North Carolina State University and 88 non-students mainly from the Raleigh-Durham, North Carolina area. Three hundred and forty-three participants took part in Study 2 (212 males and 131 females). The Study 2 sample consisted of 197 North Carolina State University students and 145 non-students. One participant did not report student/nonstudent status. In Study 1, the mean age was 21.0 years for students and 37.2 years for nonstudents. In Study 2, the mean age for students was 20.7 years and 38.3 years for nonstudents.

### *Materials*

Two surveys were employed. Study 1's survey consisted of two sections. The first section asked demographic questions. The second section asked

about the following behaviors relating to the use of OTC medications:

- (1) Percentage of times the participant would contact a physician with questions about an OTC medication.
- (2) Percentage of times they would expect to actually talk to a physician, if they were to call with an OTC medication question.
- (3) Percentage of times they save the cardboard box containing a bottle of pills after opening the package.

Study 2's survey consisted of three sections. The same survey items used in Study 1 were used in Study 2, with some additional items. The second section of the survey asked about behaviors prior to and after opening the packaging of an OTC bottle of pills. One question asked the percentage of times they saved the box after opening the package. In addition, participants were asked to rate the percentage of times they engaged in the following behaviors, which reflect orthogonal combinations of where (i.e., box vs. label) and when (i.e., before vs. after using the medication) they read OTC medication information:

- (1) Read printed material on box before opening packaging.
- (2) Read bottle label before opening packaging.
- (3) Read material on box after opening packaging.
- (4) Read material on bottle label after opening packaging.

The third section of the survey asked participants to report the likelihood that they would contact a physician with questions about an OTC medication. Response alternatives were (1) never; (2) rarely would call doctor; (3) sometimes call doctor's office; (4) frequently would call doctor's office; and (5) definitely would call doctor's office. A second question asked participants the percentage of times they would expect to actually talk to a physician if they were to call about an OTC medication. A scale was included with values ranging from 0 to 100%. The verbal anchors associated with this scale were "Never talk to a doctor," "Talk to a doctor half of the time," and "Always talk to a doctor." These anchors were

located above the 0%, 50%, and 100% scale values, respectively.

### *Procedure*

Participants were first instructed to read and sign an informed consent form. The researcher provided participants with the survey and instructed them to carefully read the instructions and questions.

## RESULTS

### *Contacting a physician*

For both Study 1 and Study 2, participants reported the likelihood that they would contact a physician with questions regarding the use of OTC medications to be very low. In Study 1, participants indicated that they would contact a physician 20.3% ( $SD=23.1$ ) of the time. The mean for Survey 2's participants was 1.9 ( $SD=1.0$ ), which is between "Never" and "Rarely." The mean percentage of time participants expected to actually talk to a physician if they were to call was 27.46% ( $SD=26.6$ ) for Study 1 participants and 24.16% ( $SD=25.4$ ) for Study 2 participants.

For each of the three questions pertaining to OTC behavior in Study 1, one-way analyses of variance (ANOVAs) were conducted with each of the demographic variables: gender, student vs. nonstudent, and age group. A median split was used to define two age groups, with participants aged 22 or younger falling in the younger age group and those over 22 being assigned to the older age group.

ANOVA analyses on the survey data from Study 1 showed a significant main effect of student status for both the percentage of times participants would contact a physician with OTC questions and the percentage of times they expected to talk to a physician if they called with a question,  $F(1, 307)=5.88, p < .05$ , and  $F(1, 307)=18.6, p < .001$ , respectively. Students ( $M=22.4\%$ ,  $SD=24.9$ ) reported that they would contact a physician regarding an OTC medication a greater percentage of times than nonstudents ( $M=15.1\%$ ,  $SD=20.5$ ). Students ( $M=31.5\%$ ,  $SD=27.1$ ) expected to talk to the physician more frequently than nonstudents ( $M=17.4\%$ ,  $SD=22.8$ ).

The same two significant effects described for student status were found for age group, with the percentage of times participants report that they would contact a physician and expect to actually talk to the physician being greater for younger ( $M=23.2\%$ ,  $SD=24.9$  and  $M=31.0\%$ ,  $SD=26.6$ , respectively) than older participants ( $M=14.9\%$ ,  $SD=21.3$  and  $M=20.9\%$ ,  $SD=25.6$ , for Study 1 and 2 respectively). No significant gender differences were found for these questions.

### *Reading the packaging and label*

Participants reported that they would save the OTC medication box a low percentage of the time, with the mean percentage being 15.7% ( $SD=25.9$ ) and 15.2% ( $SD=25.7$ ), for studies 1 and 2 respectively. There were no differences as a function of demographics in the percentage of times OTC medicine boxes were saved.

A 2 (time: before vs. after) X 2 (information placement: box vs. label) repeated measures ANOVA was conducted on the percentage reading estimates from the four time/information placement questions used in Study 2. The ANOVA showed significant main effects for both independent variables: time,  $F(1, 330)=429.7, p < .0001$ , and information placement,  $F(1, 330)=12.4, p < .001$ . Participants reported reading information a higher percentage of time before ( $M=63.5\%$ ) than after ( $M=27.4\%$ ) opening and using the OTC drug the first time, and a greater percentage of time reading the information on the label ( $M=47.4\%$ ) than the box ( $M=43.6\%$ ).

Additional analyses were conducted on the Study 2 survey data adding demographic variables individually to the above-mentioned 2X2 repeated measures design. The ANOVA with gender showed only one additional effect, a main effect of gender,  $F(1, 329)=5.64, p < .05$ . In general, females ( $M=49.3\%$ ) reported reading more OTC medication information than males ( $M=43.2\%$ ). The mixed-model ANOVAs with age group showed the same two significant main effects already described in the 2X2 analysis above. In addition, the ANOVA showed a significant main effect of age group,  $F(1, 329)=4.2, p < .05$ , with younger ( $M=47.8\%$ ) participants giving higher reading percentages than older ( $M=42.6\%$ ) participants. Age also interacted with time,  $F(1, 329)=7.6, p < .01$ , and with

information placement,  $F(1, 329)=14.3, p<.001$ . Similar to the Study 1 findings, simple effects analysis of the first interaction showed that younger ( $M=63.7\%$ ) and older ( $M=63.3\%$ ) participants did not differ in their reported reading levels before using the medication. However, after using the medication, younger ( $M=31.8\%$ ) participants reported higher levels of reading than older ( $M=21.9\%$ ) participants ( $p<.05$ ). Simple effects analysis of the second interaction indicated that younger ( $M=44.1\%$ ) and older ( $M=42.9\%$ ) participants did not differ in reading information on the packaging, however, they did differ for reading the label. Younger ( $M=51.4\%$ ) participants reported significantly higher percentages of reading than older ( $M=42.2\%$ ) participants ( $p<.05$ ). The mixed-model ANOVA that included students vs. nonstudents as a factor was nearly identical in pattern as the preceding younger vs. older analysis because the undergraduates were almost entirely in the younger age category. The exception was that there was no significant main effect of student vs. nonstudent that was described for younger vs. older participants.

## DISCUSSION

The present research examined consumers' reported behavior when using OTC medications. One of the most noteworthy findings is the low likelihood that consumers report being willing to contact a physician regarding questions and concerns about OTC medications. This might be due to beliefs that they will rarely actually speak with a physician, if they were to call. The cost of compliance to the labeling directive to contact a physician is another potential explanation (Wogalter, Allison, and McKenna, 1989). In addition, many people do not have a regular physician to call. If consumers believe that their efforts will not result in actually speaking with a physician, they may not be motivated to call. This is particularly disconcerting considering that directives on many OTC medications instruct the consumer to call a physician with questions. In fact, this directive is sometimes used in lieu of more descriptive warnings due to space constraints on the medication bottle. Even if more descriptive information is on the packaging, the present

research indicates that most people discard this material after the package is opened, and thus on subsequent uses, the information will not be available for review.

Providing an easier method of getting information about an OTC medication might decrease the perceived cost of compliance and increase the likelihood that consumers have the information they need at the appropriate time (Wogalter et al., 1989). For example, a toll-free number or the Internet address for on-line information could be included on the label. Because these sources of information have been set up for the purpose of answering questions about specific drugs, consumers may have a higher expectation of getting the information they desire, hence, lowering the perceived cost of compliance.

Some of the most important findings of this research relate to the percentages participants reported that they would read the material before and after using OTC medication. Participants indicated that they were significantly more likely to read information prior to using the medication than afterwards. This was true for both information on the box and label. Considering that participants reported keeping the medication box a low percentage of the time after starting to use the product, it indicates the importance of including important information on the primary container label for consumer reference, which often occurs after the medication is used. It also provides evidence of the need for critical information such as warnings to be salient, especially with the large amount of information in a small area, so as to capture the user's attention and direct it toward such information. Some research has revealed effective ways to increase the surface area of small containers to enable inclusion of more information and larger print (Wogalter, Magurno, Scott, and Dietrich, 1996; Wogalter and Young, 1994). For example, including an expandable label that is attached to the bottle will help resolve issues associated with space constraints and provide a means to include information that might currently be included only on the box, which, according to the current research, is rarely saved. Research has also shown that warning label characteristics such as the type of signal word used, color, spacing, and letter case affect perceptions of hazard and the conspicuity of

warning information (Braun and Silver, 1995; Cheatham and Wogalter, 1999; Wogalter, Kalsher, Frederick, Magurno, and Brewster, 1998).

Although the conclusions drawn from this study are based on self-reports, they do illustrate the need to closely examine consumer behavior as it relates to consumers reading printed material on OTC medications. The difficulty involved in collecting data on actual behavioral compliance to OTC drug warnings must also be considered in that it would intrude into people's lives and there are privacy concerns.

To effectively convey important drug-related information such as hazards associated with its use, labeling must be presented in such a way as to be easily accessible and available at the appropriate time. The findings of this study and others (e.g., NCPPIE, 2002) demonstrate that common labeling practices do not suffice for conveying this information to many consumers. Future research is needed in this area, and should focus on identifying methods for effectively presenting OTC medication information given the space limitations and the findings pertaining to consumer behavior reported in this article.

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